86th Coastal Engineering Research Board Meeting

San Diego, CA
3-4 June 2009

"Data is critical infrastructure for managing coastal water resource sy

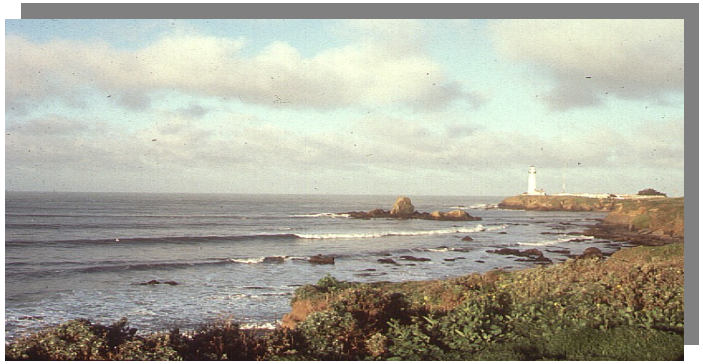
California Coastal Sediment Management Program

George W. Domurat

June 4, 2009

The California Coast

A Resource Worth Sa



"Our Coast means many things to many people, but to almost everyone it means……"

Beaches

- Protect Shorelines.
- Provides Recreation.
- Environmental Habitats.

Protective Beach

California Grunion

Recreation

Natural Sand Sources

- Rivers & Creeks.
- Eroding Coastal Bluffs.
- Upcoast Beaches.

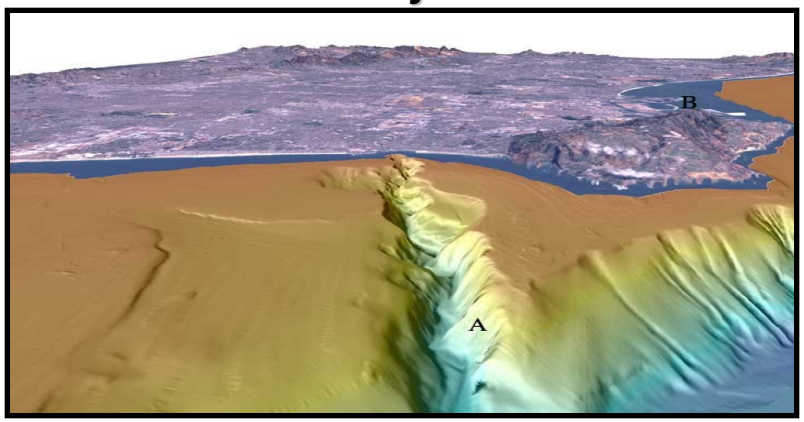
Bluff Erosion at Solana Beach

Ventura Harbor & Santa Clara River

Interruption of Natural Sand Sources

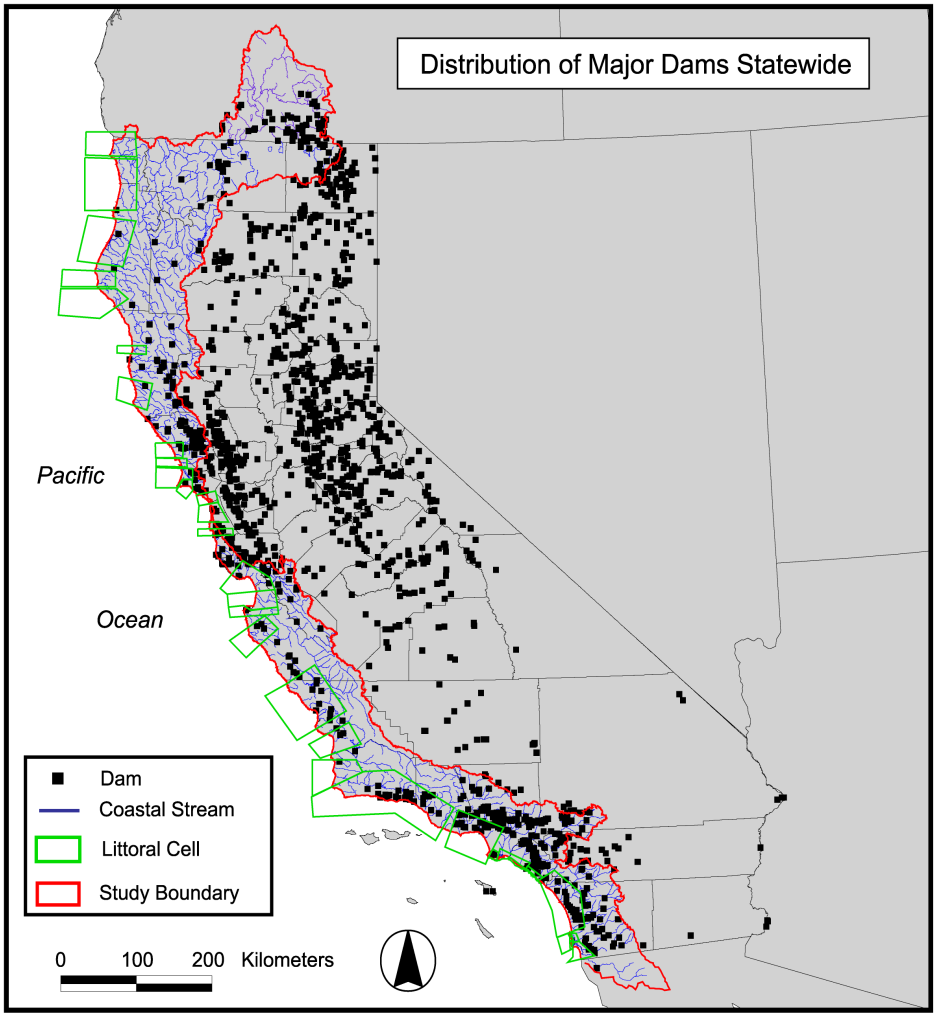
- Submarine Canyons.
- Headlands.
- Dams & Debris Basins.
- Navigation Structures.
- Shoreline Retention Structures.
- Sand & Gravel Mining Operations.

Matilija Dam



Redondo Submarine Canyon

Damming rivers has decreased the sand supply by more than 50 percent. More than 1200 dams have been built over the last 30 to 40 years trapping all but the finest sediments from being transported downstream.

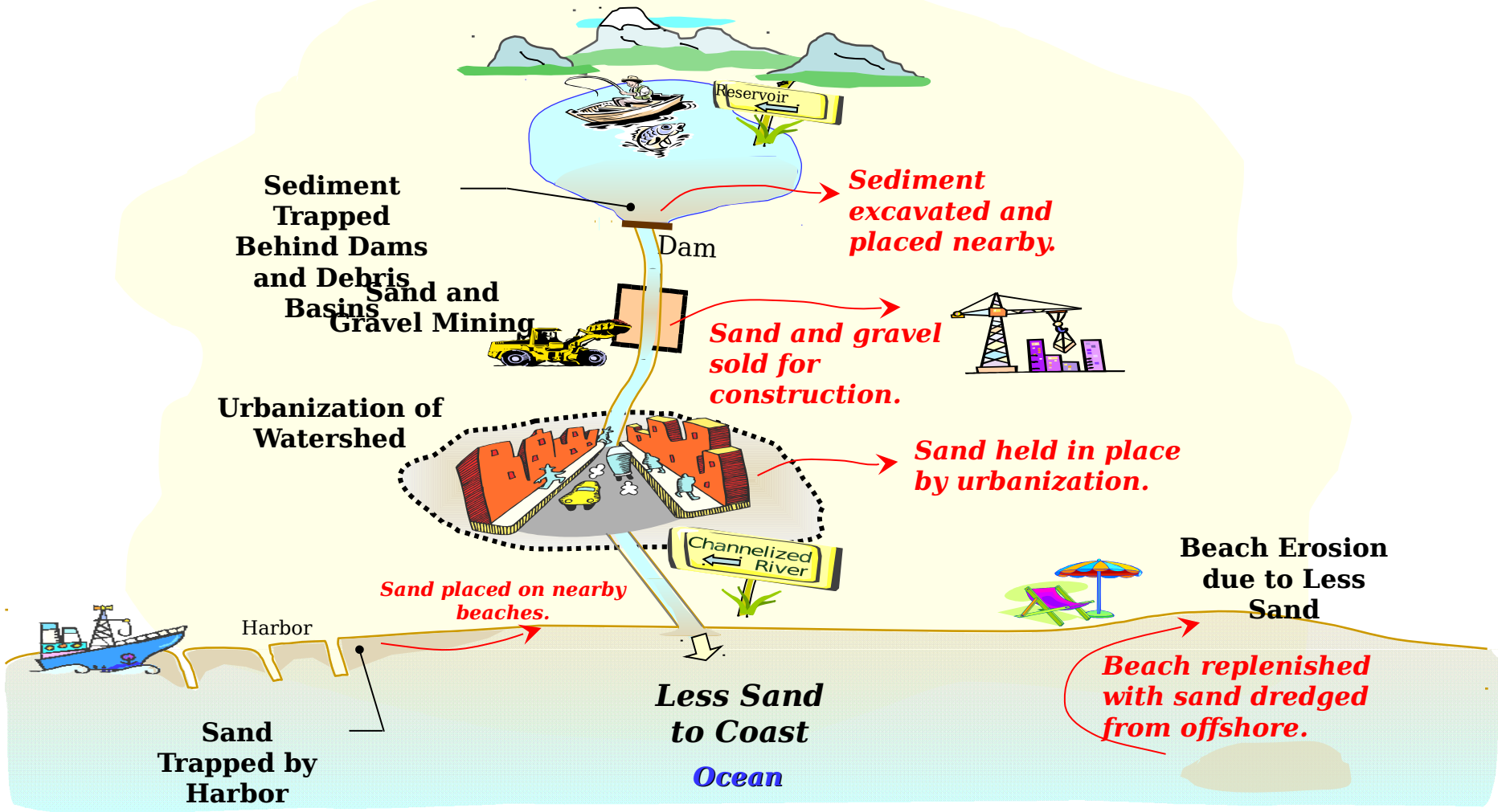


Impact

- Increase Coastal Storm Damage.
- Loss of Coastal Wetlands.
- Loss of Fish and Wildlife Habitat.
- Loss of Recreational Opportunities.
- Loss of Flood Control & Water Supply Capacity
- Loss of Beneficial Reuse Opportunities - Sediment Compatibility
- Cost Impacts

Coastal Storm at Carpinteria

Receding Shoreline at Imperial Beach


Reservoir
Sediment Trapped Behind Dams and Debris Basins
Dam
Sediment excavated and placed nearby.
Sand and Gravel Mining
Sand and gravel sold for construction.
Urbanization of Watershed
Sand held in place by urbanization.
Channelized River
Beach Erosion due to Less Sand
Sand placed on nearby beaches.
Harbor
Beach replenished with sand dredged from offshore.
Less Sand to Coast
Ocean
Sand Trapped by Harbor Structures

Existing Sediment (Sand) Management

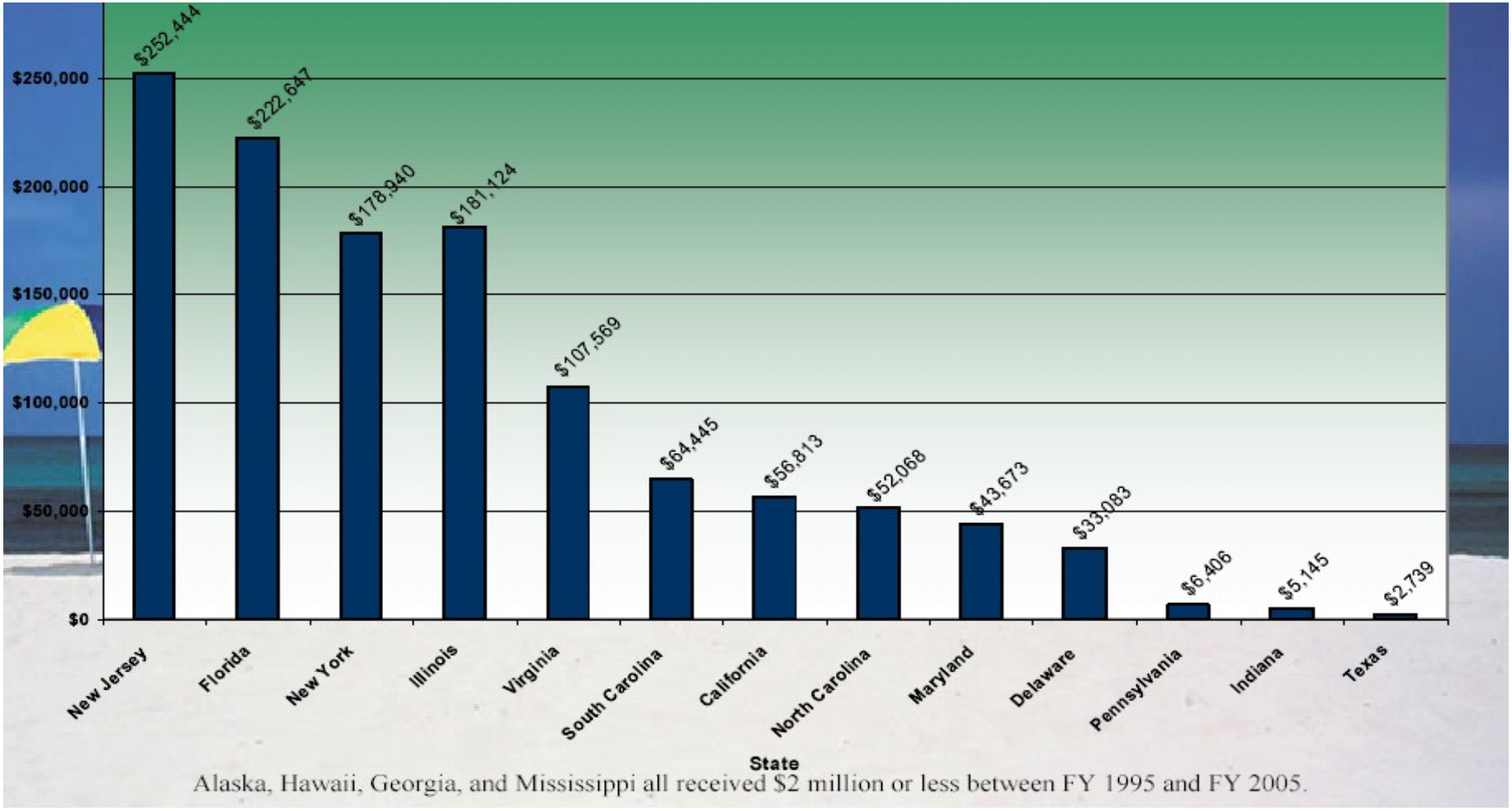
Federal and State Programs

- Federal:
  - Operations and Maintenance.
  - Continuing Authorities Program.
  - General Investigations.
  - Research and Development.
- State:
  - Public Beach Restoration Program.
  - Beach Erosion Control Program.

Individual Projects

Constraints

- Funding.
- Program Limitations.
- Policies and Priorities.
- Sediment Quality.
- Environmental Impacts.
- Differing Goals and Objectives.



Funding for Shoreline Projects FY 1995 through FY 2005

Regional Sediment Management (RSM) is a systems-based approach for collaboratively addressing sediment-related issues within a regional context.

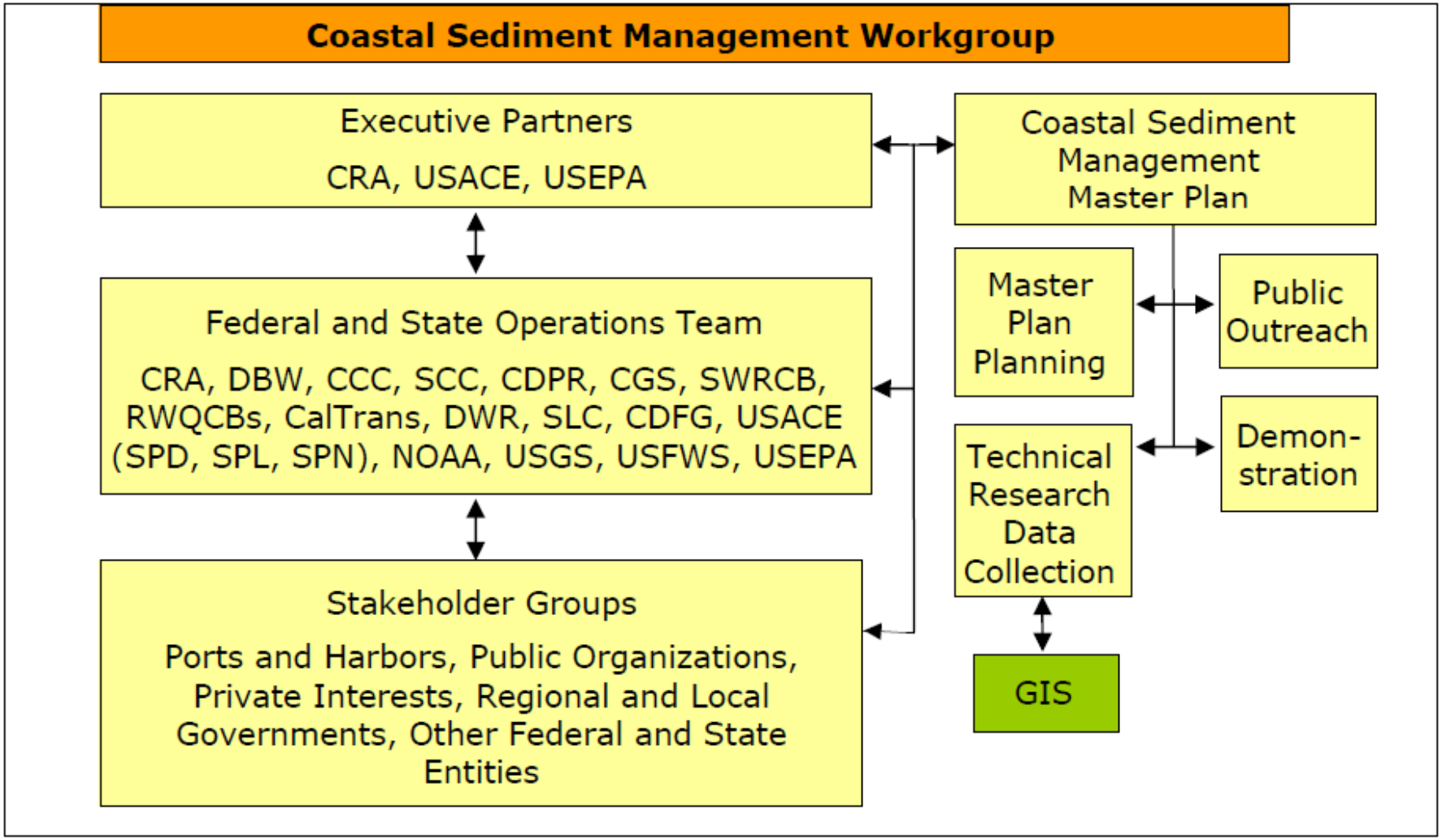
California Regional Sediment Management

… regulation and management of littoral, estuarine, and riverine sediment within the boundaries of a physical system where sediment exchange occurs naturally.

Regional sediment management recognizes that the physical system and embedded ecosystems respond beyond the space and time scales of individual projects, and that a proactive regional planning and engineering approach will

Coastal Sediment Management Workgroup

- Federal/State/Local Partnership to Address California's Coastal Needs Established in 1999.
- South Pacific Division & State Resources Agency.
- Leverage State & Federal Funds and Resour
- Collabo ctivities.

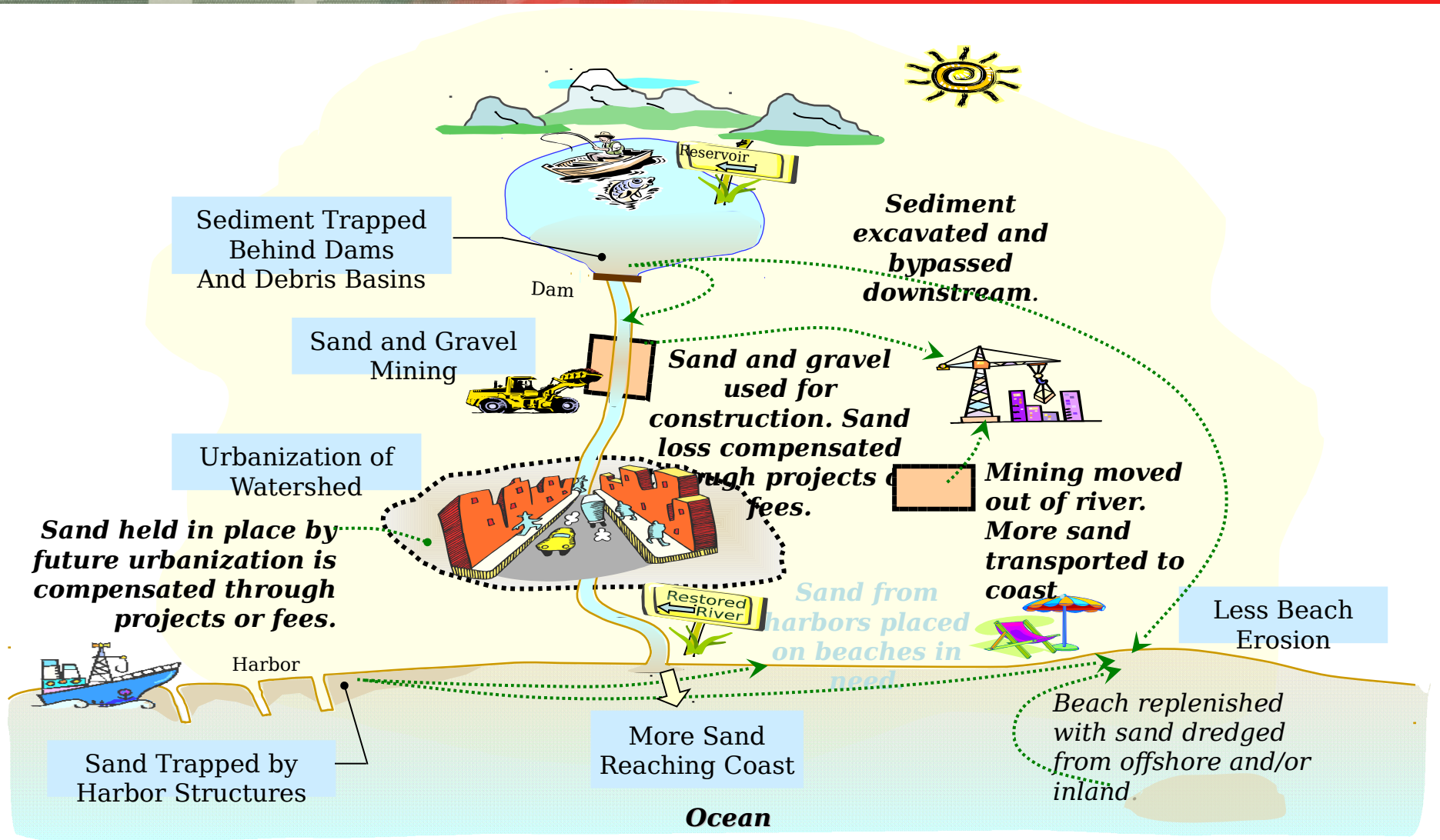

Coastal Sediment Management Workgroup
Executive Partners
CRA, USACE, USEPA
Federal and State Operations Team
CRA, DBW, CCC, SCC, CDPR, CGS, SWRCB, RWQCBs, CalTrans, DWR, SLC, CDFG, USACE (SPD, SPL, SPN), NOAA, USGS, USFWS, USEPA
Stakeholder Groups
Ports and Harbors, Public Organizations, Private Interests, Regional and Local Governments, Other Federal and State Entities
Coastal Sediment Management Master Plan
Master Plan Planning
Public Outreach
Technical Research Data Collection
Demon-stration
GIS

Mission

To facilitate regional approaches to protecting, enhancing and restoring California's coastal beaches and watersheds through federal, state and local cooperative efforts.

Goals

- ✓ **Coordinate beach and watershed efforts with Federal, State and Local stakeholders.**
- ✓ **Coordinate coastal sediment management and beach nourishment activities with related ongoing watershed/waterfront planning efforts.**
- ✓ **Develop collaborative approaches to coastal/watershed projects.**
- ✓ **Increase awareness of State/Federal coastal policies/programs among local/regional governments.**
- ✓ **Prioritize Regional Sediment Management Needs.**
- ✓ **Streamline the regulatory process.**
- ✓ **Make information widely available.**


Reservoir
Sediment Trapped Behind Dams And Debris Basins
Dam
Sediment excavated and bypassed downstream.
Sand and Gravel Mining
Sand and gravel used for construction. Sand loss compensated
fees.
Urbanization of Watershed
Mining moved out of river. More sand transported to coast
Sand held in place by future urbanization is compensated through projects or fees.
Restored River
Sand from harbors placed on beaches in need
Less Beach Erosion
Harbor
More Sand Reaching Coast
Beach replenished with sand dredged from offshore and/or inland.
Sand Trapped by Harbor Structures
Ocean

Regional Sediment (Sand) Management

Sediment is a Resource not a Spoil Material

and

Need to Manage Sediments with a "Systems-based" Approach